EXPLANATION

Surficial Geologic Units

fs — fill and spoils: *Sand, silt, gravel, sawdust, wood chips, dredge spoils, and other material placed in wetland areas and on slopes for disposal or to provide space for development; adequate foundation strength for small structures if properly placed; nature of substrate variable and includes compressible soils locally; hazards include flooding, differential settling, and amplification of seismic waves in areas of thick estuarine fill.*

ss — stable sand: *Unconsolidated fine- to medium-grained dune sand protected from wind erosion by natural or artifically introduced vegetation; thickness up to 200 feet in large dune fields, much thinner south of Bandon; ground-water production high; hazards include stream erosion, high ground water, ground-water pollution, overwithdrawal of ground water, and ocean flooding at low elevations; unit may overlie organic soils and ancient soil horizons with other properties; does not include stable sand overlying Qmt.*

su — unstable dune sand: *Unconsolidated fine- to medium-grained sand of large dunes not protected from wind erosion by vegetation; thickness, hazards and ground-water potential similar to those of stable sand; also wind erosion and wind deposition, especially in excavations or around structures; unit may overlie compressible soils or other ancient soil horizons.*

sdpb — deflation plain and beach sand: *Unconsolidated fine- to medium-grained sand of beaches, flat-lying interdune areas and transverse dune fields; thickness, hazards, and ground-water potential similar to those of stable sand; possible presence of iron-pan layers at shallow depths; possible extreme variability vertically in permeability and degree of consolidation; preservation of vegetative cover dependent on water table.*

tf — tidal flat: *Unconsolidated mud, silt, clay, and sand in the tidal zone of estuaries and other coastal wetlands; sediments compacted or high in organic material locally; hazards may also include amplification of seismic waves and ocean flooding; may be present beneath some dune sands.*

mpt — marsh and peat: *Unconsolidated organic soils of silt, clay, and sand in estuarine and fresh-water wetland areas; characterized by abundant vegetation, ponding, or high water table, hazards also include low foundation strength and stream or ocean flooding; organic soils may be present in the subsurface beneath other alluvial units or dune sands.*

Qal — Quaternary alluvium: *Unconsolidated deposits of sand, silt, clay, and mud in the flood plains of major streams draining sandstone and siltstone terrain, and gravel, sand, and silt along the middle and upper reaches of rivers draining Pre-Tertiary or volcanic terrain; grain size typically increases with depth; ground-water production moderate; associated with fresh water marsh and peat in places; hazards include stream-bank erosion, ponding, high ground water, flooding, siltation, and compressible soils locally.*

Qft — Quaternary fluvial terrace deposits: *Unconsolidated to semi-consolidated flat-lying and elevated deposits of river alluvium overlooking present stream valleys (Quaternary alluvium) and situated above the present levels of flooding; also includes fine-grained terrace deposits of estuarine origin; grain-size distributions similar to those of Quaternary alluvium and estuarine deposits; moderate ground-water production; hazards include ponding, local high ground water, and stream-bank erosion.*

Qmt — Quaternary marine terrace deposits: *Unconsolidated to semi-consolidated flat-lying and elevated marine deposits of sand, silt, clay and gravel locally; thicknesses vary from 10 to 50 feet, but locally are as little as 2 to 3 feet; elevations range from a few feet to several hundred feet near Coos Bay to almost 2,000 feet farther inland; ground-water production low to moderate; hazards may include headland erosion, stream-bank erosion, poor drainage, failure in deep cuts, and others, but generally are negligible; coastal Qmt mantled by stable dune sand.*

Bedrock Geologic Units

Sandstone of Tertiary Age

Tpe — Empire Formation (Pliocene): *Thickly bedded, hard, marine sandstone with minor thin interbeds of siltstone; impermeable, firm foundations; mantled with loamy sand, sandy loam, and silty loam; hazards include rockfall in coastal cliffs and variable erosion and mass movement; limited in distribution to the South Slough area.*

Tms — Miocene sedimentary rocks: *Calcareous, medium-grained, hard, gray sandstone exposed at Pigeon Point and recovered from nearby dredgings; indicates shallow depth to bedrock in southern extremities of entrance of Coos Bay estuary.*

Totp — Tunnel Point Formation (Oligocene): *Coarse- to fine-grained tuffaceous sandstone and minor siltstone exposed only at Tunnel Point near the entrance to Coos Bay; subject to slow headland erosion prior to the development of Bastendorff Beach.*

Tecu / Tecl — Coaledo Formation, upper and lower members (late Eocene): *Coarse- to fine-grained, hard, deltaic sandstone with interbeds of softer siltstone; well-developed bedding; conglomerate and coal beds present locally with more extensive coal deposits at depth; overlain by loamy sand, sandy loam and silty loam; low permeability and ground water potential; hazards may include slow to sporadic headland erosion locally and earthflow in deep cuts; flooding in coal mines minimal.*

Tec — Coaledo Formation, undifferentiated (late Eocene): *Parts of the undifferentiated Coaledo terrain of the east Coos Bay area high in sandstone content; lithology and hazards similar to that of the upper and lower Coaledo Formation; precise distribution determined by on-site inspection.*

Tet — Tyee Formation (middle Eocene): *Thick sequence of rhythmically bedded, hard sandstone and minor siltstone; coal-bearing at Eden Ridge; impermeable, but with moderate infiltration along joints and faults; very low ground-water potential; mantled with sandy loam and silty loam soils that locally are very thin; hazards include flash flooding, erosion, rapid earthflow, and debris flows.*

Tef — Flournoy Formation (middle Eocene): *Lithology and soils similar to those of the Tyee Formation except for increased siltstone content high in the section; mantled by sandy loam and silty loam; hazards and ground-water potential similar to those of the Tyee Formation.*

Telg — Lookingglass Formation (middle Eocene): *Lithology, ground-water potential, and hazards similar to those of the Tyee Formation, but thinner bedded and conglomeratic near the base locally; mantled by sandy loam and silty loam.*

Ter — Roseburg Formation — sedimentary rocks (lower Eocene and older): *Rhythmically bedded hard sandstone and siltstone; low permeability and low ground-water potential; faulted and sheared in southern Coos County to produce extensive mass movement terrain and subdued topography; mantled by silt loam and loamy sand; hazards include mass movement, erosion, and variable foundation conditions.*

Siltstone of Tertiary Age

Teob — Bastendorff Formation (late Eocene and early Oligocene): *Thinly bedded shale and siltstone confined to the South Slough, Isthmus Slough and Catching Creek areas; mantled by silty loam and silty clay loam; very low permeability and ground-water potential; hazards include erosion, slow mass movement, and failures in deep cuts.*

Tecm — Coaledo Formation — middle member (late Eocene): *Thinly bedded siltstone with minor sandstone interbeds; mantled by silty loam and silty clay loam; very low permeability and ground-water potential; hazards include erosion, slow headland erosion, and local mass movement.*

Tec — Coaledo Formation — undifferentiated (late Eocene): *Parts of the undifferentiated Coaledo terrain of the east Coos Bay area high in siltstone content; lithology and hazards similar to those of the middle member of the Coaledo Formation; precise distribution determined by on-site inspection.*

Tee — Elkton Formation (middle Eocene): *Thinly bedded siltstone with minor sandstone interbeds; mantled with silty loam and silty clay loam; very low permeability and ground-water potential; hazards include erosion and mass movement.*

Basalt of Tertiary Age

Terv — Roseburg Formation — basalt (early Eocene): *Marine basalt of variable lithology including pillow basalt, basaltic breccia and intrusive basalt; hardness, jointing, alteration, and potential use variable; widespread low-grade alteration; interfingers with sedimentary rock of the Roseburg Formation; mantled by silty clay loam and silty loam a few inches to several tens of feet in thickness; hazards include rapid erosion and mass movement.*

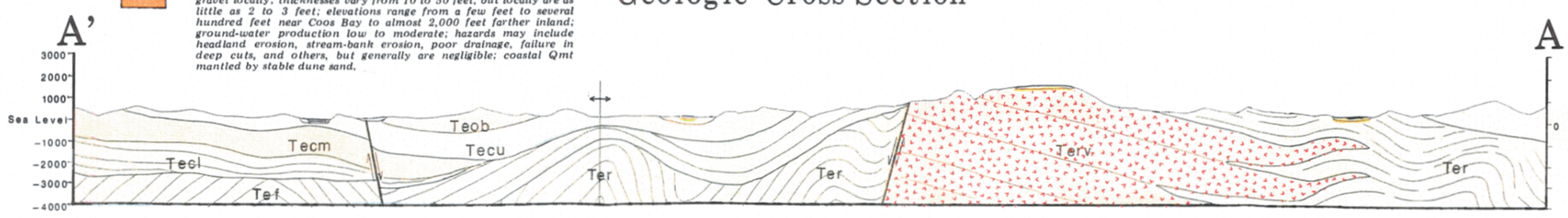
Rocks of Pre-Tertiary Age

Khm — Humbug Mountain Conglomerate (early Cretaceous): *Small exposure of bedded conglomerate and sandstone.*

Jop / Jov / Js / Jc / Jsp — Otter Point Formation (Jurassic): *A tectonically sheared assemblage of rocks including pervasively sheared sedimentary rocks (Jop) now prone to regional mass movement and subordinate amounts of sheared to intact volcanic rock (Jov), isolated blocks of thinly bedded tightly folded chert (Jc), exposures of serpentinite (Jsp), and isolated blocks of resistant blueschist (Js), a medium-grade metamorphic rock. Soil types, thicknesses, and properties highly variable; major hazards include mass movement, slope erosion, stream-bank erosion, and variable bearing strength.*

Jgv / Jg — Galice Formation (Jurassic): *Limited exposures of volcanic rock and bedded siltstone.*

Geologic Cross Section



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SECTION A'-A'

PROJECT: 20517.2
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